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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,674	09/19/2005	Takuei Ishikawa	01272.020667	8441
5514 7590 05/11/2007 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER NGUYEN, LAM S	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 05/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/549,674		ISHIKAWA ET AL.	
	Examiner		Art Unit	
	LAM S. NGUYEN		2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7, 15 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The indicated allowability of claims 1-3, 5-6, 12-14, and 16-17 is withdrawn in view of the newly discovered reference(s) to Yatake (US 5746818) and Vinals (EP 1029688 A1).

Rejections based on the newly cited reference(s) follow.

Election/Restrictions

Applicants' election with traverse is acknowledged. The traversal is on the ground that the searches would be co-extensive and would not unduly burden the examiner. This is not found persuasive because burden is not only based upon searches being co-extensive. Examination and analysis for determination of patentability creates burden. As a result, non-elected claims 4, 7, 15, and 18 have been withdrawn from further consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 5-6, 9, 10-11, 12-13, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake (US 5746818) in view of Oikawa (US 6126282) and Vinals (EP 1029688 A1).

Regarding to claims 1-2, 5, 6, 9, 12-13, 16-17:

Yatake discloses an ink jet printing method of performing printing by repeating a scanning step for scanning a row of (n) ink ejection orifices for ejecting ink (*FIG. 2, elements 22-25*) and a row of (n) reacting liquid ejection orifices for ejecting a reacting liquid (*FIG. 2,*

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element 21) that reacts with the ink, across a printing medium (*FIG. 3, element 7*), in order to eject the ink and the reacting liquid onto the printing medium, and a feeding step for feeding the printing medium, wherein

said scanning step performs the scan of the row of ink ejection orifices and the row of reacting liquid ejection orifices, so that a scanning area of the ink to which the ink is ejected while the row of ink ejection orifices scans and a scanning area of the reacting liquid to which the reacting liquid is ejected while the row of reacting liquid ejection orifices scans are adjacent to each other in a feeding direction of the printing medium (*FIG. 3, elements 31-32*), wherein a width of the scanning area of ink along the feeding direction is made greater or equal than that of the scanning area of the reacting liquid (*FIG. 3, element 31-32*),

said feeding step feeds the printing medium in a direction so that the ink is ejected over the reacting liquid (*column 13, line 61 to column 14, line 10*),

said feeding step feeds the printing medium by an amount corresponding to the width of the scanning area of the reacting liquid ejection orifices (*FIG. 3*),

the row of reacting liquid ejection orifices (*FIG. 2-3, element 21*) is located at an upstream side of the row of ink ejection orifices in the feeding direction (*FIG. 3: Direction B*) so that the scanning area of the ink ejection orifices and the scanning area of the reacting liquid ejection orifices are made adjacent to each other in the feeding direction in the same scan (*FIG. 3, elements 31-32*).

- Yatake, however, is silent wherein the ink and the reacting liquid have different permeability, and wherein the permeability of ink is higher than that of the reacting liquid.

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Oikawa discloses an ink jet recording apparatus comprising ink jet heads for ejecting inks (*FIG. 7A-B, elements Bk, Y, M, C*) and a reacting liquid *FIG. 7A-B, element S: The processing liquid*) on a printing medium, wherein the inks and the reacting liquid have different permeability, and wherein the permeability of ink is higher than that of the reacting liquid (*column 3, lines 1- 15*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify Yatake's printing apparatus to include inks and a reacting liquid having different permeability as disclosed by Oikawa. The motivation for doing so would have been to be able to control dot diameter by controlling the order for ejecting inks and the reacting liquid as taught by Oikawa (*FIG. 4A-B*).

- In addition, Yatake does not teach said feeding step feeds the printing medium by an amount (of $(n-a) \times p$, where p denotes a pitch of the (n) ejection orifices) corresponding to a width which is smaller than the width of the scanning area of the ink liquid having relatively high permeability by a predetermined amount corresponding to $(n-a)$ ejection orifices, and at least for the ink liquid having relatively high permeability, ejection of said the liquid onto a first scanning area, which corresponds to a width of the predetermined amount within the scanning area of the liquid (corresponding to (a) ejection orifices located at end portions of the row of ejection orifices), is performed during two scans, and ejection of said the ink liquid onto a second scanning area (corresponding to $(n-a)$ ejection orifices not located at an end portion) other than the first scanning area, within the scanning area of said the ink liquid, is performed during a single scan.

Vinals discloses an ink jet printer comprising an ink jet head including (n) nozzles for scanning across a recording medium to eject ink to form images on the recording medium, wherein a feeding/advancing amount of the recording medium (*paragraph [0013]: The feeding amount is seven-eighths corresponding to number of (n-a) central nozzles multiplied by distance between nozzles (pitch)*) is smaller than that of a scanning/swath area by a predetermined amount (*paragraph [0013] and FIG. 4: The predetermined amount is one eighth*), wherein ejection of ink onto a first scanning area (performing by (a) end extreme nozzles), which corresponds to a width of the predetermined amount within the scanning area of ink, is performed during two scans (*FIG. 5: 2 PASS*), and ejection of ink onto a second scanning area (performing by (n-a) central nozzles) other than the first scanning area, within the scanning area of ink, is performed during a single scan (*FIG. 5: 1 PASS*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify Yatake's printing apparatus to perform printing by different number of scans accordantly to different areas as disclosed by Vinals. The motivation for doing so would have been to hide end nozzles defects as taught by Vinals (*paragraph [0027]*).

- **Yatake also discloses the following claimed invention:**

Regarding to claim 10: wherein the row of ink ejection orifices and the row of reacting liquid ejection orifices are provided in a manner that the row of ink ejection orifices and the row of reacting liquid ejection orifices are adjacent to each other in the feeding direction (*FIG. 2*).

Regarding to claim 11: wherein the ink or the reacting liquid is ejected during feeding a first scan by said scanning step in which the row of ink ejection orifices and the row of reacting liquid ejection orifices are subjected to a forward scan, then said feeding step feeds the printing

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medium, and then the ink or the reacting liquid is ejected during a second scan by said scanning step in which the row of ink ejection orifices and the row of reacting liquid ejection orifices are subjected to a backward scan (*FIG. 4, column 14, lines 10-20: The printing operation is in both directions: Forward scan and backward scan*).

2. Claims 3, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake (US 5746818) in view of Oikawa (US 6126282) and Vinals (EP 1029688 A1), as applied to rejection above, and further in view of Smith et al. (US 6655797).

Yatake, as modified, discloses the claimed invention as discussed above except wherein the number of orifices in the reacting liquid ejection row is (n-a), where (n) is the number of orifices in the ink ejection row.

Smith et al. discloses a printing apparatus including an ink jet printhead assembly having an ink jet orifice row for ejecting ink (*FIG. 5c, elements 512b-512e*) and a reacting liquid ejection orifice row for ejecting a reacting liquid (*FIG. 5c, elements 512a or 512f*), wherein the number of nozzles of the reacting liquid printhead (*512a or 512f*) is less than that of the ink printheads (*512b-512e*) due to the height of the reacting liquid printhead is half or the ink printheads (*claim 13*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify Yatake's reacting liquid printhead, as modified, to include number of ejection orifices that is less than that of the ink ejection orifices as suggested by Smith et al. The motivation for doing so would have been to optimally use the reacting liquid printhead by activating all its ink ejection elements (orifices) in a single printing scan as taught by Smith et al. (*column 6, lines 1-7*).

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Response to Arguments

The indicated allowability of claims 1-3, 5-6, 12-14, and 16-17 is withdrawn in view of the newly discovered reference(s) to Yatake (US 5746818) and Vinals (EP 1029688 A1).

Rejections based on the newly cited reference(s) have been discussed above.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


LAM SON NGUYEN